UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/994,945 | 11/28/2001 | Gene L. Cangiani | 0918.0111C | 7284 |

27896 7590 01/30/2006

EDELL, SHAPIRO & FINNAN, LLC
1901 RESEARCH BOULEVARD
SUITE 400
ROCKVILLE, MD 20850

| EXAMINER | |
|---|---|
| BLUDAU, BRANDON S | |
| **ART UNIT** | **PAPER NUMBER** |
| 2132 | |

DATE MAILED: 01/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/994,945 | CANGIANI ET AL. | |
| | Examiner | Art Unit | |
| | Brandon S. Bludau | 2132 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *04 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-14,16,17 and 19-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16,17,19-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. This office action is in response to an amendment filed on November 4, 2005. Claims 1-29 are pending. Claims 15 and 18 are cancelled.

### *Response to Arguments*

2. Applicant's arguments filed on Nov. 04, 2005 regarding the Examiner's 101 rejection of claims 9-11 as pertaining to non-statutory subject matter have been considered, however in view of the Interim Guidelines for Examination of Patent Subject Matter Eligibility the reference submitted by the Applicant no longer applies. The rejection stated by the examiner is upheld on the grounds of the claimed invention not meeting a statutory category of a process, an article of manufacture, a machine or a composition of matter. While the Applicant's invention does relate to functional descriptive material, it must pertain to a physical substance, which a carrier signal simply is not.

3. Applicant's arguments filed on Nov. 04, 2005 with respect to claims 4, 8 and 12 regarding unclear use of the term "substantially" have been considered but are moot in view of the Applicant's omission of the term from the amended claims.

4. Applicant's arguments filed on Nov. 04, 2005 with respect to the Examiner's use of Lee in rejecting claims 1,5,9,19,13,and 16 have been considered in light of the amended claims which add the limitations stating time intervals between the groups of chips function as synchronization information for the signal; however the amended limitations are not persuasive, see Examiner's rejections.

5. Applicant's arguments filed on Nov. 04, 2005 with respect to the Casabona reference and the encoding of synchronization information for a signal based on the time durations between groups of higher power chips that are interspersed with lower power chips in a signal have been considered but are moot based on the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 101*

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**6.** Claims 9-12 are rejected under 35 U.S.C. 101 because they are directed towards non-statutory subject matter. A computer signal embodied on a carrier wave does not meet one of a statutory category for an invention as stated above.

### *Claim Rejections - 35 USC § 102*

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee (US Patent 5937000).

7. As per claim 1, Lee discloses a method of transmitting a signal, comprising:

Generating a sequence of pseudorandom noise chips at a base power level (column 8 line 20-22);

Increasing the power level of a first group of the sequence of chips above the base power level (column 8 lines 57-61 wherein the increasing of the power is achieved by adding the pseudorandom noise signal to the primary carrier signal); and

Increasing the power level of a second group of the sequence of chips above the base power level (column 8 lines 57-61 wherein the increasing of the power is achieved by adding the auxiliary data modulated by the pseudorandom noise signal to the primary carrier signal); and

Varying the time interval between the first and second groups of the sequence of chips according to a predetermined relationship representing synchronization information for said signal (column 9 line 57 – column 10 lines 5 wherein the PN sequence generated by the PN generator based on "other well known key" establishes the pre-determined relationship for the shape, i.e. the time interval between pulses, and column 10 line 40-48 wherein at the decoder, the known PN code is generated to correlate the received signal, thus this PN code serves as the synchronization information needed to determine the shape of the received signal; without the same PN code at the receiver, the shape of the data i.e. the relationship of the time interval separating the pulses cannot be known and the signal cannot be reproduced and the data cannot be retrieved).

8. As per claim 2, Lee discloses the method of claim 1, wherein varying comprises varying the time interval between the first and second groups of the sequence of chips according to a cryptographic algorithm (column 4 lines 15-33).

9. As per claim 3, Lee discloses the method of claim 1, wherein the power level of the first group of the chip sequence is different than the power level of the second group of the chip sequence (column 11 line 63 – column 12 line 2 wherein the power level of the second group may be adjusted to maintain desired power level).

10. As per claim 4, Lee discloses the method of claim 1, wherein the power levels of the first and second groups of the chip sequence are substantially greater than the base power level (column 8 lines 60-61 wherein d(t) is the pseudorandom noise signal).

11. As per claim 5, Lee discloses a method of receiving a signal including a code having boosted and non-boosted portions, wherein the boosted portions are separated in time by the non-boosted portions according to a predetermined algorithm (column 10 lines 23-48 wherein the signal including a code is the pseudorandom noise code generated by a pseudorandom algorithm wherein the PN code generates a sequence wherein the pulses are inherently separated in time relative to a reference signal), the method comprising:

Generating a local version of the code; comprised of partial sequences that are related by a predetermined algorithm used to generate variable length time intervals that separate the partial sequences (column 10 lines 40-42 wherein the PN code is a spread spectrum signal that inherently includes pulses separated in time relative to a reference signal);

Correlating the code with the received signal (column 10 lines 37-40);

Generating a decoding signal according to a predetermined algorithm (column 10 lines 42-45);

Detecting, based on the correlation and the decoding signal, boosted portions of the received signal having one or more power levels higher than a power level of non-boosted portions of the received signal (column 10 lines 45 –48 wherein the FEC encoding/decoding is optional); and

Determining a phase of the predetermined code based on the detected boosted portions of the received signal (column 10 lines 45-48).

12. As per claim 6, Lee discloses the method of claim 5, wherein the predetermined algorithm is a cryptographic algorithm (column 4 lines 15-33).

13. As per claim 7, Lee discloses the method of claim 6, wherein the cryptographic algorithm varies an interval of non-boosted portions of the signal in an encrypted manner (column 4 lines 15-33).

14. As per claim 8, Lee discloses the method of claim 5, wherein detecting comprises detecting said one or more power levels of the boosted portions of the received signal that is greater than the power level of the non-boosted portions of the received signal (column 10 lines 45 –48 wherein the FEC encoding/decoding is optional, wherein upon dispreading of the signal the boosted portions of the original signal are recovered).

15. As per claim 9, Lee discloses a computer signal embodied in a carrier wave, comprising (column 9 line 28-33):

A plurality of groups of low power chips;

A plurality of groups of high power chips suitable for processing by a computing device upon reception;

wherein the groups of low power chips are disposed during time intervals between the groups of the high power chips, wherein durations of the time intervals of the groups of low power chips vary and represent synchronization information for said computer signal (column 8 line 55-63, wherein the auxiliary signal is modulated by a pseudorandom noise code that is generated based on a predetermined relationship wherein the signal pulses are separated in time intervals relative to a reference signal, wherein the reproduction of these intervals at the receiver based on the PN code serves as synchronization / correlation information for the received signal).

16. As per claim 10, Lee discloses the computer signal according to claim 9, wherein the durations of the time intervals of the groups of low power chips vary according to a predetermined cryptographic algorithm (column 4 lines 15-33).

17. As per claim 11, Lee discloses the computer signal according to claim 9, wherein the durations of the time intervals of the groups of high power chips are fixed (column 8 lines 57-63 wherein the high powered chips are determined by the primary signal which could be any shape inherently including one with fixed time intervals of the high power chips with the purpose of masking the auxiliary signal).

18. As per claim 12, Lee discloses the computer signal according to claim 9, wherein a power level of the high power chips is greater than a power level of the low power chips (column 8 lines 60-63).

19. As per claim 13, Lee discloses a transmitter suitable for transmitting a staggered pulse signal, comprising:

A code generator configured to generate a plurality of pulses according to a code (see Fig. 3 # 48);

A cryptographical unit configured to generate a cryptographical sequence based on a cryptographical key (column 4 lines 15-33); and

An amplifier connected to the code generator and the cryptographic unit and configured to amplify a first one of the pulses to a first level and to amplify a second one of the pulses to a second level in response to the cryptographical sequence, wherein the amplifier responds to the cryptographical sequence to generate a time interval between the first and second pulses such that time intervals between groups of pulses at the first level represent synchronization information for the signal (column 4 lines 15-33 wherein the cryptographical sequence defines the shape of the PN code which when reproduced at the receiver serves as synchronization information necessary to reproduce the original signal and column 11 lines 43-49 wherein the amplify is capable of altering the power level of the signal pulses).

20. As per claim 14, Lee discloses the transmitter of claim 13, wherein the code is a pseudorandom noise (PN) code (see Fig.3 #48).

21. Claim 16 is rejected for disclosing the same subject matter as claim 13.

22. Claim 17 is rejected for disclosing the same subject matter as claim 14.

23. As per claim 19, Lee discloses a receiver for receiving a staggered pulse signal having high-power pulses of a code separated by time intervals according to a cryptographic algorithm (see claim 15), the receiver comprising:

A cryptographic unit configured to generate a cryptographic sequence corresponding to the cryptographic algorithm (column 10 lines 40-48 wherein the PN code generated at the encoder is based on a cryptographic sequence as implied in column 4 lines 15-33);

A code detection unit connected to the cryptographic unit and configured to detect a code phase of the received staggered pulse signal based on the cryptographic sequence generated by the cryptographic unit to decode the time intervals between the high-powered pulses and thereby acquire synchronization to the staggered pulse signal (column 10 lines 37-48 wherein the reproduced PN code is cryptographic and is used as synchronization information to acquire the staggered pulse signal wherein the time intervals are relatively determined based on the correlated code used to reproduce the original signal, thus without the predetermined code used to synchronize the received signal, the data could not be retrieved).

24. As per claim 20, Lee discloses the receiver of claim 19, wherein the code detection unit comprises:

A correlator configured to correlate the received signal with a local code and to output a correlation signal (column 10 lines 37-40); and

A decoder unit configured to decode the correlated signal based on the cryptographic sequence generated by the cryptographic unit (Lee column 10 lines 45-48; wherein the cryptographic sequence generated by the cryptographic unit is discussed in claim 19).

25. As per claim 21, Lee discloses the receiver of claim 20, wherein the decoder unit comprises a matched filter configured to detect a sequence of time intervals between the high power pulses of the received signal corresponding to the cryptographic sequence to acquire synchronization to the staggered pulse signal (see claim 49).

26. As per claim 22, Lee discloses the receiver of claim 21, wherein the cryptographic unit comprises a cryptographic processing unit and a cryptographic storage unit having stored therein cryptographic keys, wherein the cryptographic processing unit generates the cryptographic sequence based on a key stored in the cryptographic storage unit (column 4 lines 15-33 wherein it is inherent to the invention that the PN code generated according to a cryptographic algorithm would maintain the key at the PN generator see claim 19).

27. As per claim 23, Lee discloses the receiver of claim 19, wherein the decoder unit uses a pseudorandom noise (PN) code to decode the correlated signal (column 10 lines 40-48).

28. Claim 24 is rejected because it discusses the same subject mater as claim 19.

29. Claim 25 is rejected because it discusses the same subject matter as claim 20.

30. Claim 26 is rejected because it discusses the same subject matter as claim 21.

31. Claim 27 is rejected because it discusses the same subject matter as claim 23.

32. Claim 28 is rejected because it discusses the same subject matter as claim 1.

33. As per claim 29, Lee discloses a method for receiving a signal, comprising:

Receiving a sequence of pseudorandom noise chips comprising a first group of chips at an increased power level relative to a base power level interspersed with a second group of chips at the base power level;

Detecting only the first group chips;

Determining durations of time intervals between successive one of the first groups of chips; and

Acquiring synchronization to the signal based on said durations (column 10 lines 23-48 wherein the signal including a code is the pseudorandom noise code generated by a pseudorandom algorithm wherein the PN code generates a sequence wherein the pulses of increased power from a base power level are inherently separated in time relative to a reference signal and wherein in receiving the signal, the receiver replicates the PN code generated at the transmitter to detect the sequence of higher powered pulses and using this code the receiver is able to synchronize with the received code based on the intervals reproduced to generate the original code).

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandon S. Bludau whose telephone number is 571-272-3722. The examiner can normally be reached on Monday -Friday 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brandon S Bludau
Examiner
Art Unit 2132

BB
***

GILBERTO BARRON JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100